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ABSTRACT

Learning through the use of symbols presupposes the ability to think visually, including the perception, structuring, processing, and transformation of visual images. Since children process high volumes of visual messages, especially via television, schools should restructure curricula to include objectives in visual literacy, specifically the reading, planning, creating, and combining of visuals for intentional communication. Analogies to verbal literacy are useful, but inadequate in explaining the complexity of visual thinking. The Visual Communications Project of Milford represented the most successful attempt to present a sequence of visual literacy skills, and other recent investigations have increased the understanding of visual literacy. The research is proliferating, but efforts have not as yet been drawn together by a comprehensive theory of visual literacy. (EMH)

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VISUAL LITERACY:
A BIBLIOGRAPHIC SURVEY

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The following bibliographic survey has been prepared in hopes of identifying some of the recent trends and developments related to the new and expanding field of investigation known as visual literacy. While the tremendous amount of information published on a topic that crosses so many fields and disciplines prevents any hope at exhaustiveness, an attempt has been made to include those findings that have been of significance in the establishment of the field.

Visual Thinking

Learning through various symbolic systems of visual representation makes certain strong assumptions about the learner (Olson & Bruner, 1974). For example, it presupposes the ability to think visually, that is, to be visually literate. Barley and Ball (1971) define "literacy" as a complex of knowledge, capacities, and skills that an individual can develop for understanding, manipulating, and mastering the uses of letters and sounds for recording, conveying, and interpreting messages. The development and use of such literacy in the visual mode is referred to as visual literacy.

Visual thinking is characterized by visual imagery; the kind that we see (sensory), the kind that we imagine (the mind's eye), and the kind we draw (generative)(McKim, 1972). Visual thinking depends upon visual perception, sequentially combined with the formation of cognitive structures into a continuous process. "No thought processes seem to exist that cannot be found to operate, at least in principle, in perception. Visual perception is visual thinking (Arnheim, 1969, p. 14)."

The perceptual processes of seeing, imagining, and reconstructing visual images (the perception, structuring, processing, and transformation of visual symbols) comprises visual thinking. The transformational skills involved in visual thinking constitute the discipline of visual literacy.

Rationale

Why visual literacy? Nelson (1975) cites recent research that indicates that 83% of all sensory learning is visual, while some researchers project as much as 90% (Dale, 1969). Thanks to the general acceptance of recent technological advance, the visual culture that Gattegno (1969) predicted and described just a few years ago has, in many situations, already become a reality.

The effects of such technology, particularly the inundation of visual images from television, films, and advertising, to say nothing of the visual orientation of contemporary instructional materials, has been treated extensively in the literature and continues to grow. Debes (1968) contends that the most insidious effect of the more commonly used forms of visual media is the child's lack of ability to exert visual choices.

For example, television, the most ubiquitous of the visual media, provides no opportunity for proprioceptive involvement with the visual image. Children become only passive receivers, unable to make any choices on visual attending, since only a single, invariable idea is transmitted. The child is unable to choose the image or affect the flow, able only to decide to watch or not to watch. Without more active involvement, the development of important visual skills is greatly restricted and hindered.

Barley and Ball (1971) rationalize the need for visual literacy training, because 1) children pay more attention to television and movies than to teachers, 2) the plethora of visual information media means that children should learn how to turn off unneeded messages, 3) the sophistication of visual messages requires children to distinguish value from glamour, and 4) visuals are the best means for understanding the nonverabl individual.

"The school must, and rapidly, restructure itself to serve today's electronic age children, or it will perish as an institution (Flynn, 1972, p. 41)." Assuming a more futuristic perspective, Thomas (1974) proposes the need for a visual language and accompanying skills to enable us to deal with the geometrically increasing growth of knowledge. The visual generation in which we exist mandates the need for visual skills, the need to become a visually literate society.

Visual Literacy Defined

What is visual literacy? Although opinions differ, a brief analysis of the terminology found in the literature may be of some help. Fransecky and Debes (1972) distinguished visual literacy as the learning of attributes or skills of visual communication for the purpose of conveying a visual message. The media for such communication are visual technology, the hardware that makes the visual communication of today possible.

The First National Conference on Visual Literacy adopted this definition:

> Visual literacy refers to a group of vision competencies a human being can develop by seeing at the same time he has and integrates other sensory experiences. The development of these competencies is fundamental to normal human learning. When developed, they enable a visually literate person to discriminate and interpret the visible actions, objects, and/or symbols, natural or man-made, that he encounters in his environment. Through the creative use of these competencies, he is able to communicate with others. Through the appreciative use of these competencies he is able to comprehend and enjoy the masterworks of visual communication (Williams & Debes, 1970, p. 14).

The New York Educational Communications Association asserted that visual literacy means "going beyond literacy codes to derive meaning and message (Ross, 1973, p. 205)." According to Debes (1969a), a visually literate person should be able to "read and write" visually and to use the tools of visual literacy with reasonable assurance. Nelson (1975) conceives of visual literacy as the abilities of those who are able to accurately intercept, interpret, understand, and create communication in a nonprint mode. Visual literacy is a compilation of the skills of visual communication.

Visual Literacy Skills

The need for visual literacy skills precedes the learning of a verbal language. From early childhood, the interpretation of body language is integral to the development of a visual language (Debes, 1968). Body language is almost entirely visual and preverbal, constituting the first level of Debes' ontogenetic hierarchy of visual skills.

Later, object language, the use of visual cues, gained from objects in the child's environment, develops. This stage in the

development of visual literacy succeeds body language. The child must be able to manipulate (proprioceptive involvement) objects. The development of symbology, or the use of symbols as visual communicators, is the most formal level of visual literacy. Symbols are the last to develop because of the need for higher level intelligence and formal operations.

The enumeration of the skills of visual literacy would more accurately define the discipline. Debes (1969b) uses the verbal analogy to define a taxonomy of visual literacy skills, composed of visual perceptual abilities and a knowledge of the visual language which he synthesized into these characteristics of a visually literate person:

> To read visuals with skill.
> To write with visuals expressing oneself effectively.
> To know the grammar and syntax of visual language and be able to apply them.
> To be familiar with the tools of visual literacy and their use.
> To appreciate the masterworks of visual literacy.
> To be able to translate from visual language to verbal language and vice versa.

Fransecky and Debes (1972) further generalized these skills, requiring a visually literate student to be able to read, plan, create, and combine visuals for intentional communication. They make an important distinction between the structure of visual literacy (the analysis of the visual language) and visual literacy skills (the skill base to help children generate visual language statements). Such a distinction constitutes an important issue in the study of visual literacy.

Olson (1974) contends that the skills involved in communicating messages, content, or knowledge are implicit, requiring

various forms of literacy which affect understanding of the message. This implicit, integral nature of skills prevents them from being communicated by the media; they must be practiced.

Use of visual media, therefore, presupposes an understanding of the structure of the message based upon practice and experience with the medium. Visuals cannot teach people to be visually literate, therefore, practicing literacy skills is essential and precursive to being literate. Tanzman (1972) indicates that visual literacy stresses "hands-on," sensory learning with the student totally involved in his activities.

The content of any visual literacy program can be translated into goals, purposes, or objectives for the students. The role of visual literacy is to give the child opportunities to react visually and proprioceptively to things he sees (Debes, 1968). The student should practice selecting and attending to visual phenomena and interacting with it for the purpose of creating visual statements.

Two aspects of this purpose should be recognized by students in learning visual literacy skills, an understanding of the capacity of the medium (the medium point of view) and the perspective of the individual producer of the message (the human point of view) (Evers, 1969). "The emphasis in visual literacy is on the new humanism, the importance of the students' individual perceptions (Tanzman, 1972, p. 41)."

In Ostwald's (1970) model of visual literacy, the reality of sensory input is affected not only by multisensory perceptual

factors, but also by past experiences of the perceiver. Any interpretive behavioral response to the sensory input is, in turn, affected by social rules, so that understanding of the symbol system (visual literacy) is only one factor affecting communication. The human factor is equally important.

The Visual Language

Visual literacy is eclectic in origin. It is a fusion of principles from divergent disciplines, such as semantics, linguistics, philosophy, industrial, vocational, and graphic arts, and the study of art (Barley, 1971).

Visual literacy is most frequently referred to as the structure or syntax of visual language. The verbal language analogue can be utilized effectively in attempting to understand the various components of visual literacy. The verbal language syntactic structures postulated by Chomsky (1966) suggests an a priori model for the further investigation of the visual language. Fransecky and Debes (1972) equate the visual presentation with the surface structure of transformational grammar. Visual literacy allows us to study the innate, generative capacity of visual statements. The visual language parallels the verbal in all ways.

The visual counterpart to the written word of the verbal language are the gestures, forms, and movements of body language and object language and recorded images (on film, paper, tape) of object and symbolic language. The images contain subject elements and predicate elements, similar to verbal structures, according to Debes' model. In comparing visual and verbal languages in terms

of design features common to all spoken languages, Chen (1972) concludes that the capacity of the visual language is comparable to the verbal except for productivity and flexibility. The concreteness of visuals limits their capacity to perform some symbolic functions.

In some respects, the visual language is more capacious. While verbal thinkers usually learn only one language, visual thinkers can acquire a variety of graphical languages (McKim, 1972). In his model, visual thinking interacts with graphic language to form a graphic ideation, just as thought and verbal language interact to form verbal concepts. Not all visual thinking is language thinking, just as verbal language is unable to account for all thought. The parallel between visual and verbal language thinking tends to diverge even more as the concepts are studied more closely.

According to Dondis (1973), for example, visual literacy cannot be an obvious, logical system similar to verbal language. Languages are constructs devised by man to encode, store, and decode information, with a structure that visual literacy is unable to parallel. The generative capacity of a visual language is limited because of the meaningfulness and concreteness of visual images. The verbal language analogy is useful in helping us to understand visual thinking, but it cannot constitute the sole model. Other theories must be included in combination.

Visual Literacy Applied

The concept of visual literacy has to a great degree, developed inductively, that is, discovery and understanding of the concept has been generated post hoc from numerous literacy projects.

Most programs were begun using whatever existing "hands-on" media were readily available (usually automatic and still 35mm cameras and 8mm motion picture cameras) with only a vague notion of what visual literacy was all about.

For example, many visual literacy programs in various school situations are intended to be "a communication vehicle that provides boys and girls with the opportunity to record and interpret their world as it really is, both objectively and subjectively (Flynn, 1972, p. 42)." Parameters of learning or an operational set of literacy skills have not been available, however, as a project planning tool. The goals of programs, such as those espoused by Flynn, are no doubt worthwhile, but their vagueness and lack of structure make the main points they are trying to communicate quite difficult for students to fully comprehend.

The Visual Communications Project of Milford (Fransecky & Ferguson, 1973) has been the most comprehensive, systematic attempt to define and implement a consistent sequence of visual literacy training. In a K-12 program, basic literacy skills are developed in the elementary years and broadened in the secondary years to include perceptual understanding, production skills, and so on. The program includes a definite set of experiences in a phase oriented structure. Children learn to perceive and interrelate forms and their communicative functions as well as the more complex perceptual elements inherent in the forms and are able to synthesize these skills in audio-visual presentations incorporating the subordinate elements.

While the Milford Project has been the most systematic program implemented in the schools to date, other more recent visual literacy projects (Ross, 1972; Van Holt, 1972) have aided greatly in attempting to establish a more practical knowledge base. The paradigm and theoretical foundations for all of these projects, however, appear to be either absent or ill-defined.

Visual Literacy Research

The lack of a research paradigm for visual literacy has required researchers (Fransecky & Debes, 1972) to cite research from related fields, such as visual perception, psycholinguistics, and semantics in order to gain a better understanding of the concept being studied. In the First National Conference on Visual Literacy, Williams (1970) generated nine propositions for visual literacy research, relating the development of literacy to an individual's history and experience with visuals. These propositions are the only existing framework for conducting visual literacy research.

Effectiveness studies have related visual literacy training to reading performance (Fransecky & Ferguson, 1973; Van Holt, 1972) and other academic performance variables suggesting significant relationships between visual and verbal language skills. The nexus between these skills, however, is not clear at the present time.

Fransecky and Ferguson (1973) recommend that visual literacy research be based upon cognitive and behavioral theories of visual perception. Like the verbal language paradigm, however, it would appear that no singular theory will be sufficient to account for all of the factors. In addition, they stress the need for the

conducting of hard research and the gathering of empirical data on visual literacy. Such research efforts at this time, however, would appear to be futile until we are in a better position to know more precisely what visual literacy is and how it should be studied. By deciding upon a specific research paradigm and operationalizing some of the more important variables, investigators could begin to conduct the necessary experiments. The various definitions offered to date, however, do not yet appear adequate enough for the accomplishment of such goals and objectives.

The scope of visual literacy research is expanding rapidly, with the contributions of aptitude-treatment interaction research in media (Allen, 1975; Cronbach & Snow, in press). Research in relating specific techniques of visual literacy, such as supplantation of cognitive skills by visual cueing techniques (Salomon, 1972) has contributed to the direction and meaningfulness of visual media research.

While methodological guidelines for visual literacy research are available (Griffith & Miner, 1972a, 1972b), no theory of visual literacy exists. In view of the fact that the field has evolved from a number of divergent fields such as visual perception, linguistics, graphics, information processing, and Gestaltism, the construction of a unified theory, or metatheory, of visual literacy should, perhaps, be considered in order to provide the theoretical framework necessary for generating and interpreting needed research.

Such a metatheory would no doubt constitute a hybrid of the most relevant, extant definitions and related theories. The amalgamation of these and other features found in theories of cognition,

perception, and instruction would hopefully contribute to the development of a model that could begin to explain some of the complex processes involved in achieving visual literacy and predicting visual thinking behavior.

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